REMARKS

This Amendment is in response to the Office Action of May 30, 2007 in which claims 1-20 were rejected.

I. Amendments

Claim 1 has been amended based on generalized features of original claim 5. Further, the Examiner considered claim 2 not to further limit claim 1. The subject matter of claim 2 has been included in claim 1 and original claim 2 has been cancelled. Moreover, the preamble of claim 1 has been removed.

New dependent claim 2 indicates that correlations are determined for different replica codes based on same signal samples that are read various times. (original disclosure: par. 0039 of published U.S. application).

Dependent claim 5 has been adapted to amended claim 1. The Examiner objected to claim 5, as it mentioned "said extracted samples," which had not been mentioned before. In claim 5 this objection has been overcome by replacing the expression by "said read samples."

Independent device claim 7 has been amended in the same manner as claim 1. The mentioned compensation component can comprise, for instance, the mixer 32 and the decimation block 33 of the embodiment of Figure 3 of the instant application.

Independent claim 12 has been reformulated as an apparatus claim and restricted in the same manner as claim 7. In claims 12-14, further the formulations "adapted to" have been replaced by formulations "configured to" for reasons of clarity.

Independent claim 16 has been amended in the same manner as claim 7.

Independent claim 20 has been amended in the same manner as claim 1. Moreover, the preamble of claim 20 has been reduced.

New independent claim 21 indicates that the apparatus of claim 12 may be a chip (corresponding to original claim 12).

A new independent apparatus claim 22 has been added, which defines means for realizing the method claim 1.

II. Subject matter of the claims

The application defines in independent claim 1 a method with the following features:

1. Storing signal samples of at least one received code modulated signal with a first rate in a memory.

2. Reading stored signal samples with a second rate from said memory, wherein said second rate is higher than said first rate.

3. Compensating in said read signal samples various possible Doppler frequencies.

4. Determining for each of said possible Doppler frequencies a correlation between said compensated signal samples and samples of at least one available replica code.

The application further comprises an independent claim 7 directed at a corresponding electronic device, an independent claim 12 directed at a corresponding apparatus, an independent claim 16 directed at a corresponding system, an independent claim 20 directed at a corresponding software program product, and a further independent claim 22 directed at a corresponding apparatus.

III. Prior art

The Examiner referred to the following reference:

US 5,329,549 A (Kawasaki)

This document relates to a method for searching a carrier frequency and code phase of a signal received by a GPS receiver. The method includes steps of: quantizing the received signal; sampling the quantized signal at a first speed by a carrier frequency generated in the receiver; storing the samples in memory at a first speed; reading the samples from memory at a second speed; and determining the correlation between a code of the carrier frequency generated in the receiver and the received signal. The second speed is faster than the first speed. (Abstract)

Prior to the recognition of a signal from a satellite, the CPU 16 controls the carrier generating circuit 15 so that GPS receiver can search for the carrier and the C/A code of the received signal. The code generating circuit 15 is also controlled by the CPU 16 so that the GPS receiver can search for the phase of the C/A code of the received signal. The frequency range in which the search or carrier frequency is conducted is dictated by the Doppler frequency range of the signal from the satellite and the frequency error of the reference oscillator 8. (col. 4, lines 20-30)

An IF signal is sampled at a carrier frequency generated by the carrier generator 15 and is stored once in each of the memories 30 and 31. The stored IF signal is read from each of the memories 30 and 31 during each search for the phase of the code at a rate different from the rate at which the IF signal was written to the memories 30 and 31. (col. 6, lines 5-11)

IV. Novelty and obviousness rejections

Independent claim 1

The Office was of the opinion that the subject matter of original claim 1 is anticipated by Kawasaki. Claim 1 has been amended with limitations from original claim 5. The Office further considered the limitations of original claim 5, which have now been included in claim 1, to be anticipated by Kawasaki, as Doppler compensation is mentioned in Kawasaki. This estimation is contested.

In claim 1, the samples read from the sample memory are not provided directly to the actual correlation operations, but only after a compensation for a respective Doppler frequency.

In Kawasaki, in contrast, the read samples are provided directly to the correlation operations, because the Doppler compensation takes place at another stage of processing. Kawasaki teaches that a signal is *sampled at a respective carrier frequency* (col. 6, lines 5-7), while this carrier frequency may be generated taking account of Doppler frequencies (col. 4, lines 26-30). Thus, samples obtained at a different sampling rate for each Doppler frequency are stored in a memory for extraction with a higher rate for the correlation operations.

The approach of Kawasaki has the disadvantage that different sampling

rates have to be employed when different Doppler frequencies are to be considered. This disadvantage can be avoided with the approach of claim 1.

Here, the signal samples may be extracted with a constant rate from a received signal and stored in memory. Various Doppler frequencies may then be considered based on the samples that are retrieved at a higher sampling rate from memory, e.g., by mixing the samples with an adjustable frequency.

On the whole, it becomes apparent that the teachings of claim 1 have to be considered to be new and non-obvious in view of Kawasaki.

Other independent claims

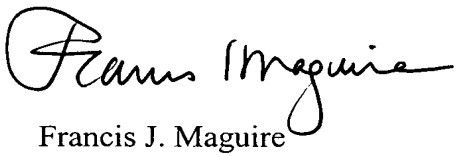
The other independent claims comprise corresponding features, thus the same comments apply.

Dependent claims

The dependent claims have to be considered to be new and non-obvious already due to their reference to a respective new and non-obvious independent claim. It is pointed out nevertheless, that according to claim 2, the same samples are read various times for checking *various replica codes* without the need to store the same data various times in parallel while processing the read data nevertheless with the rate of the incoming samples. (application as filed, pp. 11-12, lines 32-20). It is not mentioned in Kawasaki that the same samples can be read several times for comparing them to different replica codes. This is a further improvement for saving memory space.

The objections and rejections of the Office Action of May 30, 2007, having been obviated by amendment or shown to be inapplicable, withdrawal thereof is requested and passage of claims 1-22 to issue is earnestly solicited.

Respectfully submitted,



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